



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/821,822	04/09/2004	Stephen H. Gunther	42P4728XC	1387
8791	7590	03/20/2006	EXAMINER	
BLAKELY SOKOLOFF TAYLOR & ZAFMAN			LAU, TUNG S	
12400 WILSHIRE BOULEVARD			ART UNIT	
SEVENTH FLOOR			PAPER NUMBER	
LOS ANGELES, CA 90025-1030			2863	

DATE MAILED: 03/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/821,822

Applicant(s)

GUNTHER ET AL.

Examiner

Tung S. Lau

Art Unit

2863

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 37-60 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 37,44,45,52,53 and 60 is/are rejected.
- 7) ☒ Claim(s) 38-43,46-51 and 54-59 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>See office action</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification Amendment

1. Specification Amendment filed on 02/27/2006 is accepted by the examiner.

Information Disclosure Statement

2. The information disclosure statement filed 02/27/2006 fails to comply 1.98 (b)(5) which requires each publication listed an information disclosure statement must be identified by publisher, author (if any), title, relevant pages of the publication date, and place of publication. The NPL 'Anew type of curvature-compensated CMOS bandgap voltage references' by SHU_YUAN CHIEN et al. does not contains page number. It has been placed in the application file, but the information referred to therein has not been considered.

Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purpose of determining compliance with the requirements based on the time of filling the statement, including all certification requirements under 37 CFR 1.97(e). See MPEP § 609.05(a).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill

Art Unit: 2863

in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

a. Claims 37, 44, 45, 52, 53 and 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hussain et al. (U.S. Patent 6,172,611) in view of Gose et al. (U.S. Patent 5,675,297).

Regarding claim 37:

Hussain discloses a thermal management system for an integrated circuit die comprising: a temperature sensor formed directly on the die (Col. 2, Lines 40-60), the temperature sensor having an output (fig. 3, unit 340, 350); the element to reduce power consumption of the die in response to the output of the temperature sensor (fig. 1, unit 130); a control element formed directly on the die (fig. 1, unit 120, Col. 1-2, Lines 21-39), the control element including at least one register to provide an enable/disable bit for the thermal management system; and a visibility element formed directly on the die (fig. 2, unit 20), the visibility element to indicate a status of the output of the temperature sensor (fig. 3, unit 360, 350).

Regarding claim 45:

Hussain discloses an apparatus comprising: a die; and a thermal management system formed directly on the die (Col. 2, Lines 40-60), the thermal management system including a temperature sensor (fig. 3, unit 340, 350), the temperature sensor having an output (fig. 3, unit 340, 350); a element to reduce power consumption of the die in response to the output of the temperature sensor, (Col. 2, Lines 40-60) a control element including at least one register to provide an enable/disable bit for the thermal management system (fig. 2, unit 230, 240); and

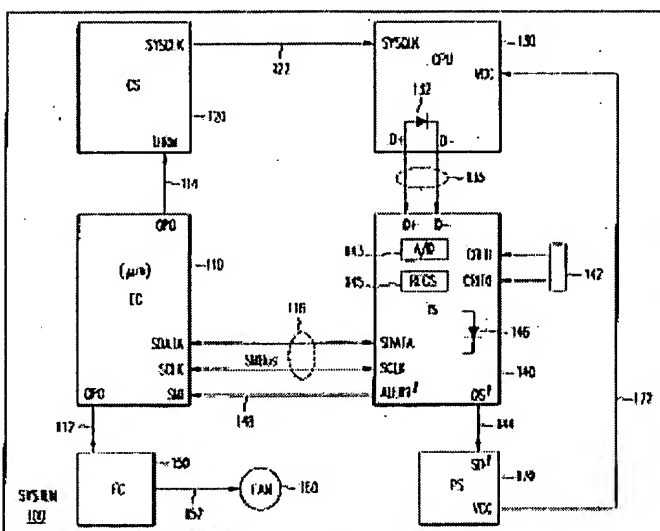


FIG. 1

Hussain discloses a system comprising: a memory coupled with a bus (fig. 2, unit 210); and a processor coupled with the bus (fig. 1, unit 130), the processor including a die and a thermal management system formed directly on the die (fig. 1, unit 143, 145), the thermal management system including a temperature sensor (fig. 1, unit 150, 140), the temperature sensor having an output (fig. 1, unit 152); the element to reduce power consumption of the processor in response to the output of the temperature sensor (Col. 3-4, Lines 40-28); a control element, the control element including at least one register to provide an enable/disable bit; and a visibility element (fig. 2, unit 230, 240), the visibility element to indicate a status of the output of the temperature sensor (fig. 2, unit 240), 230).

Art Unit: 2863

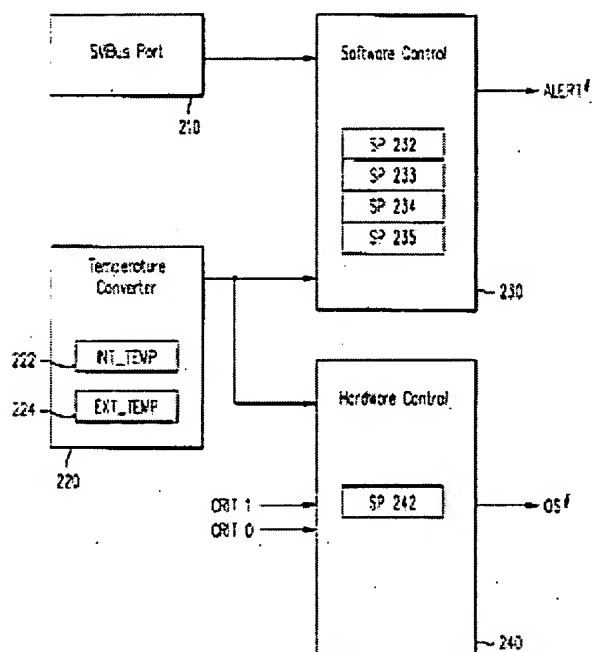


FIG. 2

Regarding claims 44, 52 and 60, Hussain discloses selected from a group consisting of lower a frequency of a clock signal internal to the die (Col. 3, Lines 47-67).

Hussain does not disclose power modulation, Gose disclose power modulation (Col. 2, Lines 5-30), in order to provide a short circuit protection and thermo protection of the circuit to avoid permanent damage (Col. 2, Lines 41-47).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Hussain to have power modulation taught by Gose in order to provide a short circuit protection and thermo protection of the circuit to avoid permanent damage (Col. 2, Lines 41-47).

Art Unit: 2863

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Hussain and Gose are analogous art because they are from the same field of endeavor, thermal control in a integrated circuit.

Allowable Subject Matter

4. Claims 38-43, 46-51 and 54-59 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all the limitation of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance: prior art fail to teach regarding claims 38, 46 and 54, a programmable voltage source providing a programmable voltage proportional to a temperature of the die; and a comparator having one input coupled via a first signal line to the reference voltage source and another input coupled via a second signal line to the programmable voltage source, the comparator to provide a signal at the output of

the temperature sensor in response to the programmable voltage substantially equaling the reference voltage; regarding claims 42, 50 and 58, including at least one of register selected from a group consisting of a register to selectively disengage a specified portion of the thermal management system, a register to enable the thermal management system in response to an occurrence of an external event, a register to force the thermal management system active while overriding a disable bit provided by the at least one register, and a register to allow external software and hardware to enable the thermal management system; regarding claims 43, 51 and 59, a register to provide a sticky bit, a counter to count a number of lost clock cycles resulting from operation of the thermal management system, and circuitry to generate an interrupt when the temperature sensor output transitions to a different state.

Claims 39-41 are objected due to their dependency on claim 38.

Claims 47-49 are objected due to their dependency on claim 46

Claims 55-57 are objected due to their dependency on claim 54

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

5. Applicant's arguments filed 02/27/2006 have been fully considered but they are not persuasive.

A. Applicant argues in the arguments that the prior art does not show the 'thermal management system for an integrated circuit die'. Hussain clearly discloses 'thermal management system for an integrated circuit die' in fig. 1, unit 130, and Col. 1-2, Lines 21-39. "The use of patents as references is not limited to what the patentees describe as their own inventions or to the problems with which they are concerned. They are part of the literature of the art, relevant for all they contain." *In re Heck*, 699 F.2d 1331, 1332-33, 216 USPQ 1038, 1039 (Fed. Cir. 1983) (quoting *In re Lemelson*, 397 F.2d 1006, 1009, 158 USPQ 275, 277 (CCPA 1968)). In Col. 1, Lines 21-36, 57-60, Col. 2, Lines 10-31, Here Hussain clearly discloses that temperature monitor device can be build in directly in the die and that the circuit itself is form of .35 micron 7.5 million transistor die (see attachment).

B. Applicant cited 50 U.S.P.Q. 2d 1614, 1617 *In re Dembiczak* where the court finds without suggestion teaching or motivation of the reference. This does not apply here because Gose clearly and expressly discloses the reason to combine (in order to provide a short circuit protection and thermo protection of the circuit to avoid permanent damage) in Col. 2, Lines 41-47. Reminds the applicant that the strongest rationale for combining references is a recognition, expressly or impliedly in the prior art or drawn from a convincing line of reasoning based on

Art Unit: 2863

established scientific principles or legal precedent, that some advantage or expected beneficial result would have been produced by their combination. In re Sernaker, 702 F.2d 989, 994-95, 217 USPQ 1, 5-6 (Fed. Cir. 1983).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tung S Lau whose telephone number is 571-272-2274. The examiner can normally be reached on M-F 9-5:30. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on 571-272-2269. The fax phone numbers for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2863

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TL


MICHAEL NGHIEM
PRIMARY EXAMINER